

DESCRIPTION OF THE THIRD INSTAR LARVA OF *HEMIPHILEURUS*  
*DISPAR* KOLBE (COLEOPTERA: SCARABAEIDAE:  
DYNASTINAE: PHILEURINI)

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*Abstract.*—The larva of the dynastine scarab beetle *Hemiphileurus dispar* Kolbe from Dominican Republic, Hispaniola, and Greater Antilles is described. A key to the larvae is provided for the known species of the tribe Phileurini in the New World, which now includes ten species of larvae in six genera.

*Key Words:* *Hemiphileurus*, larvae, Hispaniola

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Larvae of nine American species in six genera in the tribe Phileurini have been previously described (Ritcher 1966; Vanin et al. 1983; Morelli 1991, 1992). The known larvae of Phileurini are distinguished from other American dynastine larvae by the following combination of characters (following Vanin et al. 1983): chaetoparia of epipharynx with few or no sensillum among the setae; left mandible with two fused teeth (S1+S2) before the scissorial notch, one tooth (S3) immediately after the notch, and one tooth (S4) near the middle of the inner margin; each tarsal claw with two setae; and raster without palidia.

The genus *Hemiphileurus* Kolbe contains 28 species distributed from the U.S.A to Paraguay (Endrödi 1985, Ratcliffe 1988, Chalumeau 1988). Adults of *Hemiphileurus* are collected at lights, under loose bark, and inside rotten logs. Larvae are found inside rotten logs, frequently living with adults. Most of the species are associated with tropical forests from sea level to 1500 m altitude. Species live in broadleaf deciduous forests, pine-oak forests, or thorn scrub.

The larva of *H. dispar* is the second larva described in the genus *Hemiphileurus*. Ritcher (1966) described the larva of *H. illatus* LeConte but included it in the genus *Phileurus* Latreille. Larvae of *H. illatus* were collected in the trunk of *Dasyvirion* sp. (Liliaceae) and in *Bumelia lanuginosa* (Michx.) Pers. (Sapotaceae).

We describe the third instar larva of *Hemiphileurus dispar* which is endemic to Hispaniola (Greater Antilles islands). A key for the known larvae of ten species in the tribe Phileurini is provided. The following description is based on Ritcher's (1966) terminology.

KEY TO THE THIRD INSTAR LARVAE OF THE  
AMERICAN PHILEURINI  
(Based on Ritcher 1966)

1. Lateral margins of labrum broadly rounded, not angulate . . . . . 2
- At least one lateral margin of labrum angulate . . . . . 5
2. Foretarsal claw longer than middle and hind tarsal claws . . . . . 3
- Foretarsal claw similar in size to middle and/or hind tarsal claws . . . . . 4
3. Epicranial setae abundant (more than 15).

- Right anterior process of hypopharyngeal sclerome much shorter than basal segment of labial palpus . . . . *Actinobolus trilobus* Luederwaldt
- Epicranial setae scarce (less than 10). Right anterior process of hypopharyngeal sclerome equal in length to basal segment of labial palpus . . . . . *Homophileurus luederwaldti* (Ohaus)
4. Ocelli present. Lateral third of frons with deep, coarse, coalescent punctures . . . . . *Trioplus cylindricus* (Mannerheim)
- Ocelli absent. Anterior two-thirds of frons with scattered, small, shallow pits . . . . . *Phileurus didymus* (L.)
5. Left lateral margin of labrum angulate . . . . . 6
- Left and right margins of labrum angulate . . . . . 8
6. Frons with 6 anterior frontal setae. Last segment of antenna with 4 dorsal sensory spots . . . . . *Archophileurus vervex* Burmeister
- Frons without anterior frontal setae. Last segment of antenna with 2 dorsal sensory spots . . . . . 7
7. Maxilla with a row of 7 truncate, stridulatory teeth. Inner margin of left mandible, distad of molar area, with a prominent, triangular tooth . . . . . *Phileurus valgus* (Olivier)
- Maxilla with a row of 6 conical, stridulatory teeth. Inner margin of left mandible, distad of molar area, with a short, rounded tooth . . . . . *Phileurus fimbriatus* Burmeister
8. Frons with 2 anterior frontal setae. Haptomerai process of epipharynx sinuate . . . . . *Phileurus affinis* Burmeister
- Frons without anterior frontal setae. Haptomerai process of epipharynx truncate . . . . . 9
9. Last segment of antenna with 2 dorsal sensory spots. Inner margin of left mandible, distad of molar area, with a short, rounded tooth (Figs. 4a, 5b) . . . . . *Hemiphileurus dispar* Kolbe
- Last segment of antenna with 3–4 dorsal sensory spots. Inner margin of left mandible, distad of molar area, with a prominent, triangular tooth . . . . . *Hemiphileurus illatus* LeConte

*HEMIPHILEURUS DISPAR* KOLBE  
(Figs. 1–10)

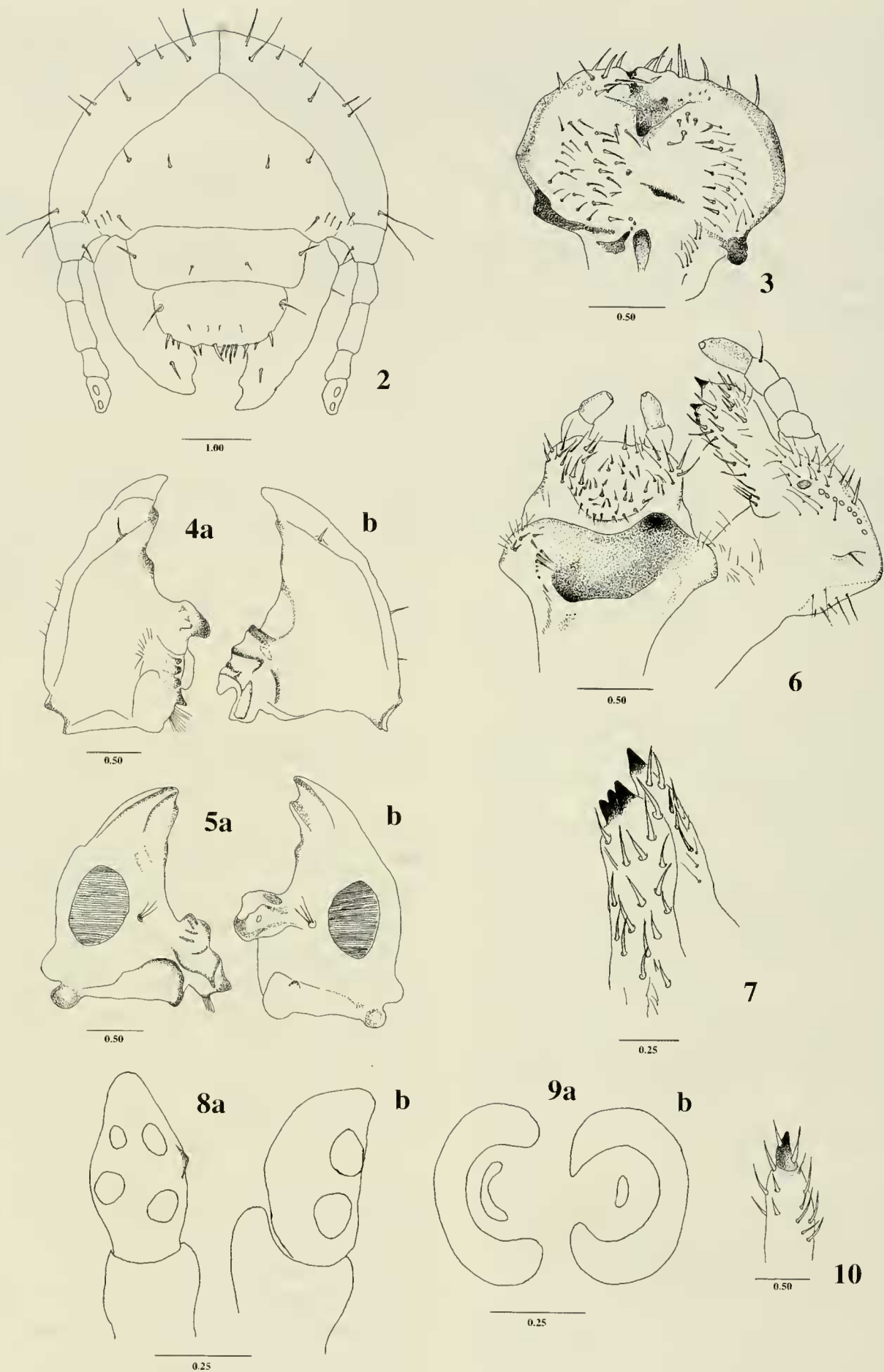
This description is based on two third-instar larvae associated with an adult collected in roots of a rotten pine stump. The specimens have the following collecting data: “Parque Nacional Almando Bermudez. La Compartación, 19°02'22"N 70°58'10"W. 7880 ft. 07 April, 1992. M.A. Ivie, W. T. Lonier, P. Sikes.” (Dominican Republic).

Description.—Maximum width of head capsule 4.41 mm. *Cranium* (Fig. 2): Sur-



Fig. 1. *Hemiphileurus dispar*, third instar larva, habitus, lateral view. Scale bar in mm.

face nearly smooth, covered with pits (finely punctate), brownish. Frons sparsely punctate, with 2 exterior frontal setae, 4 posterior frontal setae, anterior frontal setae absent; anterior margin of frons with 3 setae on each side; epicranium with row of 8–9 dorso-epicranial setae, 7 postocular setae, 1 ocular seta. *Clypeus*: Dorsal surface with 1 external seta and 2 anterior setae. *Labrum*: Symmetrical with 1 dorso-lateral setae and 4 dorsal setae. *Epipharynx* (Fig. 3): Plegmata absent. *Corypha* with 5 thick setae. *Haptomerum* with cone-like process, lacking heli. *Acanthoparia* without setae. *Chaetoparia* with about 30 setae on each side. *Dexiotorma* well-developed, elongated, with pternotorma slightly developed; sclerotized plate present. *Laeotorma* elongate, smaller than dexiotorma, with pterotorma well-developed. *Sensory cone* larger than pternotorma. *Mandibles*: Left mandible (Figs. 4a, 5b) with 2 scissorial teeth anterior to scissorial notch and 1 scissorial tooth



Figs. 2-10. *Hemiphileurus dispar*, third instar larva. 2, Frontal view of head. 3, Epipharynx. 4, Dorsal view of left mandible (a) and right mandible (b). 5, Ventral view of right mandible (a) and left mandible (b). 6, Dorsal view of labium and maxilla. 7, Dorsal view of galea and lacinia of maxilla. 8, Apical antennal segment, ventral (a) and dorsal (b). 9, Spiracles, thoracic (a) and first abdominal (b). 10, Tarsus of anterior leg showing the tarsal claw. Scale bars in mm.



posterior to notch. Stridulatory area oval. Lateral edge with 5 setae. Dorsal surface in apical half with 1 thick seta. Molar area 4-lobed; dorsomolar area with 8 setae. Acia present, apex acute. Right mandible (Figs. 4b, 5a) with 2 scissorial teeth anterior to scissorial notch and 1 poorly developed scissorial tooth posterior to notch. Dorsal surface in apical half with 1 thick seta. Lateral edge with 2 setae. Molar area trilobed. Stridulatory area oval. *Maxilla* (Figs. 6, 7): Galea with 1 uncus at apex and 5 thick setae at base. Lacinia with 3 unci at apex and 17 thick setae at base. Stipes with 9 stridulatory teeth, last tooth truncate. Cardo with 10–11 setae. Palpus 4-segmented. *Labium* (Fig. 6): Hypopharynx asymmetrical, right side with well-developed, apical, truncate process; left side with well-developed posterior process. Glossa with 36–38 setae on disc and 22 on margin. *Antenna* (Figs. 8a, b): Dorsal surface of last segment with 2 rounded sensory spots, ventral surface with 4 rounded sensory spots. *Thorax* (Fig. 1): Spiracles brownish (Figs. 9a); C-shaped respiratory plate; distance between 2 lobes of respiratory plates smaller than dorsoventral diameter of bulla; bulla spiracular, slightly prominent. Dorsum of pro-, meso- and metathorax with sparse, slender setae. Tarsal claws with 2 setae (1 near base, 1 near apex). Lateral prothoracic sclerotization evident, shape irregular, 3 times longer than wide. *Abdomen* (Fig. 1): Spiracles of segments similar in size (Fig. 9b); respiratory plate brownish; spiracular bulla rounded slightly prominent; spiracular slit small. Dorsum of abdominal segments 1–9 with sparse spinelike setae and scattered long, slender setae; spiracular areas lacking setae or with 1–3 setae. Raster without palidia and with teges; anal lip with 37 setae on disc and with 15 long setae on margin; teges formed by 47 setae; campus with 2 long, thin setae on each side and fine, minute setae present on mid-campus; barbula with sparse, long setae; dorsal anal lobe with spinelike, long setae; anal slit straight.

**Diagnosis.**—The frons lacking anterior

frontal setae; the haptomeral process of the epipharynx ridgelike and truncate; the last segment of antenna with 2 dorsal sensory spots; and the inner margin of the left mandible, distad of molar area, with a short, rounded tooth (Figs. 4a, 5b) will separate *Hemiphileurus dispar* from *H. illatus* (the other known larva of the genus).

In *H. illatus*, the last segment of the antenna has 3–4 dorsal sensory spots and the inner margin of the left mandible, distad of molar area, has a prominent, triangular tooth.

**Diagnostic characters for *Hemiphileurus* larvae.**—Based on the two known species of the genus *Hemiphileurus* (*H. illatus* and *H. dispar*) the larvae of *Hemiphileurus* are similar to those of some species of *Phileurus*. Larvae of these genera share three characters: angulate margin on both sides of the labrum, absence of anterior frontal setae, and the haptomeral process entire. However, larvae of more species of both genera need to be studied before we can propose precise diagnoses.

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